

PROSTATE NEOPLASIA

BENIGN PROSTATIC
HYPERPLASIA

AND

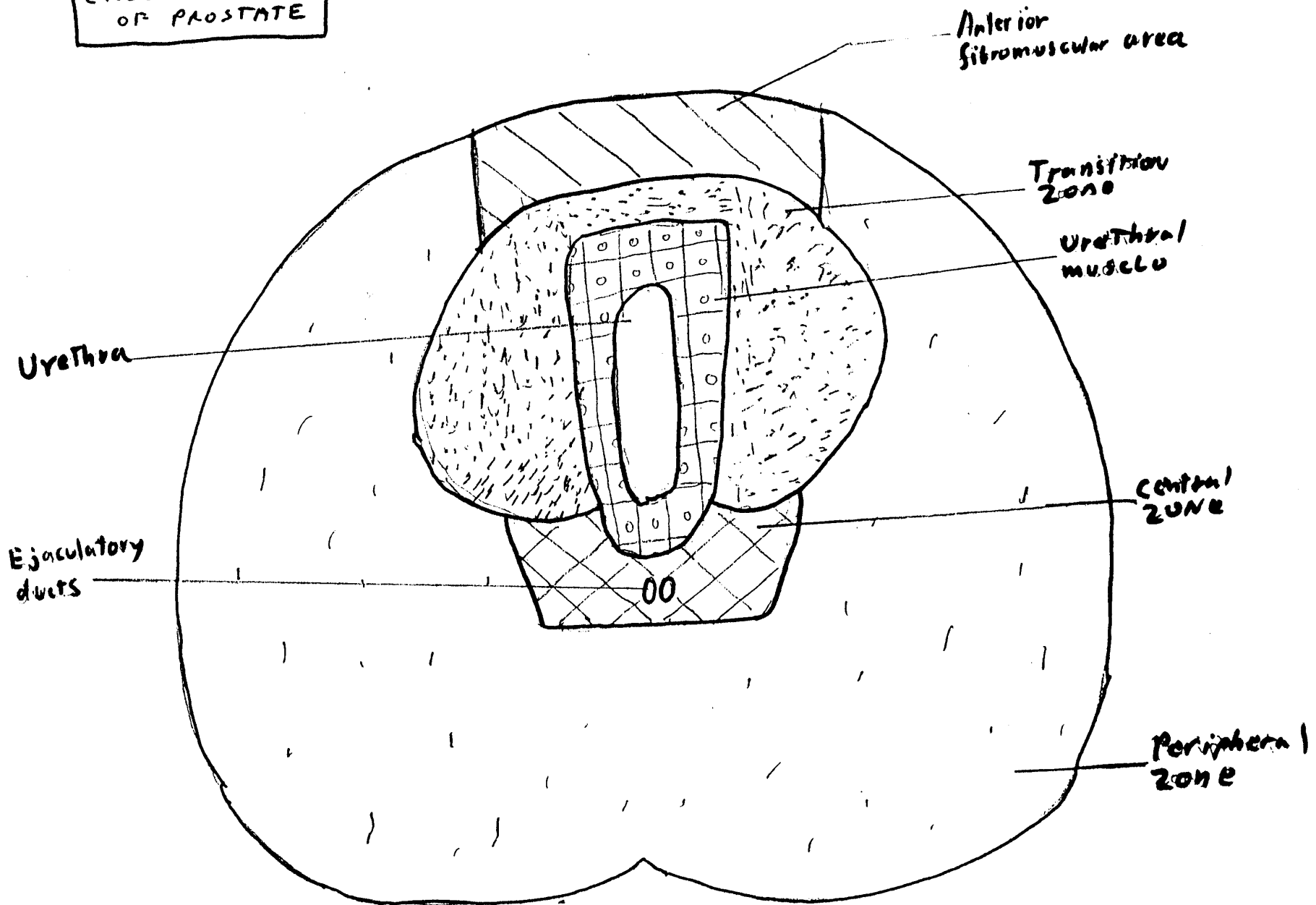
PROSTATE CANCER

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PROSTATE ANATOMY

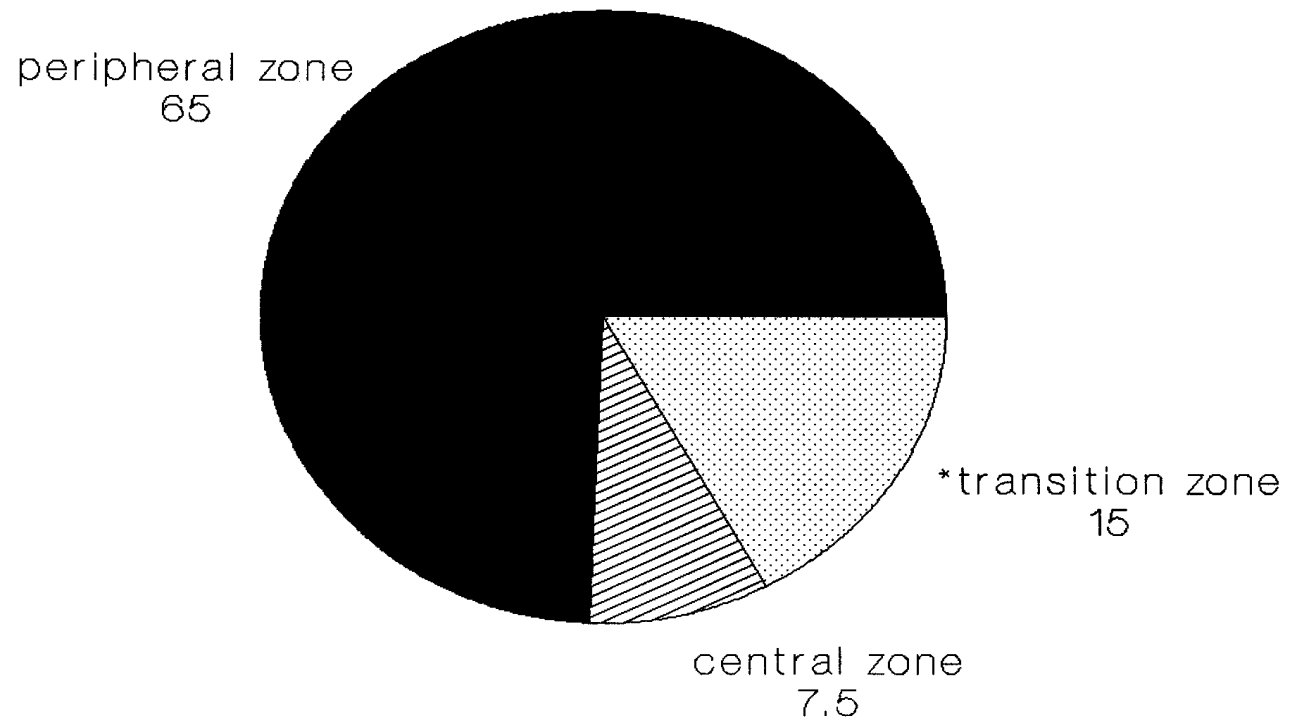
- fibromuscular tissue (30-50%)
- glandular epithelial cells (50-70%)
- peripheral zone
- central zone
- transition zone (BPH, low grade cancers)

CROSS SECTION
OF PROSTATE



PROSTATE ANATOMY

Location of Cancers



***most difficult area to diagnose**

BENIGN PROSTATIC HYPERPLASIA

- 17% of men age 50-59
- 27% of men age 60-69
- 35% of men age 70-79
- Similar crosscultural prevalence
- Some genetic and racial susceptibility to symptom severity
- Diet may play a role (saturated fats,zinc)

BPH

Proposed Etiologies

- Reawakening of the urogenital sinus to proliferate
- Change in hormonal milieu with alterations in the testosterone/estrogen balance
- Induction of prostatic growth factors
- Increased stem cells/decreased stromal cell death

BPH

Pathophysiology

- Slow and insidious changes over time
- Complex interactions between prostatic urethral resistance, intravesical pressure, detrusor functionality, neurologic integrity, and general physical health.

BPH

Pathophysiology

- Initial hypertrophy → detrusor decompensation → poor tone → diverticula formation → increasing urine volume → hydronephrosis → upper tract dysfunction

BPH SYMPTOMS

Obstructive and Irritative

- Hesitancy
- Intermittency
- Terminal dribbling
- Impairment of size/force of stream
- Incomplete emptying
- Nocturia
- Frequency
- Urgency
- Dysuria

BPH

Other presenting signs/symptoms

- Abdominal/flank pain with voiding
- Uremia → fatigue, anorexia, somnolence
- Hernias, hemorrhoids, bowel habit change
- UTI's
- Bladder calculi
- Hematuria

BPH

Clinical Findings

- Late signs of renal failure
- Abdominal exam → hydronephrosis/pyelonephritis
- GU exam → hernia, stricture, phimosis, cancer
- DRE → a smooth enlargement, “non-palpable” nodularity with a loss of distinction between the lobes. A soft/firm consistency, underestimates enlargement, can't feel seminal vesicles

BPH

Danger Signs on DRE

- Firm to hard nodules
- Irregularities, unequal lobes
- Induration
- Stony hard prostate
- Any palpable nodular abnormality suggests cancer and warrants investigation

BPH

Clinical Evaluation

- AUA Score to assess sx severity but NOT for DDX
- DRE for prostate size, consistency, nodules, asymmetry, rectal tone and neuro exam
- Abdominal/GU exam
- UA, lytes(BUN,Creat.) PSA(interpret carefully)
- Uroflowmetry/residual urine measure
- Upper tract evaluation if hematuria
- Ultrasound
- Cystoscopy

American Urologic Association Symptom Index

Name: _____ Date: _____

	Not at All (0)	Less than 1 time in 5 (1)	Less than half the time (2)	About half the time (3)	More than half the time (4)	Almost Always (5)	Your Score
1. Incomplete Emptying Over the past month, how often have you had a sensation of not emptying your bladder completely after you finished urinating?							
2. Frequency Over the past month, how often have you had to urinate again less than 2 hours after you finished urinating?							
3. Intermittency Over the past month, how often have you found you stopped and started again several times when you urinated?							
4. Urgency Over the past month, how often have you found it difficult to postpone urination?							
5. Weak Stream Over the past month, how often have you had a weak urinary stream?							
6. Straining Over the past month, how often have you had to push or strain to begin urination?							
	None	1 time	2 times	3 times	4 times	5 or more times	
7. Nocturia Over the past month, how many times did you most typically get up to urinate from the time you went to bed until the time you got up in the morning?							

BPH SYMPTOMS

Differential Diagnosis

- Urethral stricture
- Bladder neck contracture
- Carcinoma of the prostate
- Carcinoma of the bladder
- Bladder calculi
- Urinary tract infection and prostatitis
- Neurogenic bladder

BPH

Natural History

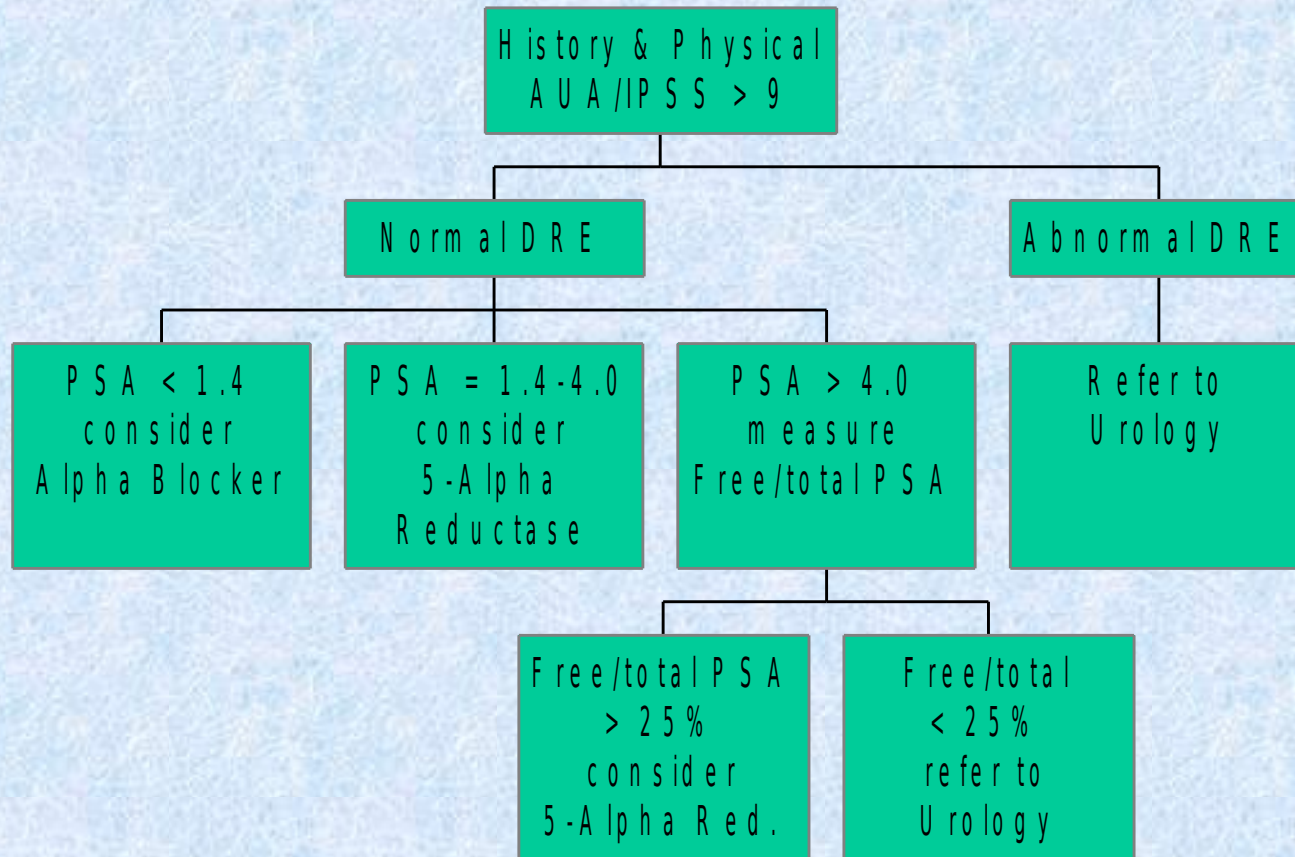
- A progressive condition (usually) with histological onset in the 30's and worse with age
- A 50 yo has a 20-25% lifetime chance of needing a prostatectomy
- A 40 yo who lives to 80 has a 30-40% chance of prostatectomy
- But these numbers may change with new medical Rx and one third of patients improve on their own

BPH TREATMENT INDICATIONS

Absolute vs Relative

- Severe obstruction
- Urinary retention
- Signs of upper tract dilatation and renal insufficiency
- Moderate symptoms of prostatism
- Recurrent UTI's
- Hematuria
- Quality of life issues

A POSSIBLE APPROACH



BPH TREATMENT

NON-SURGICAL

- Watchful waiting, AUA score < 7 , 1/3 improve on own.
- Herbal Rx (Saw Palmetto)
- Alpha-1-adrenergic antagonists (terazosin, doxazosin, tamsulosin)
- 5-Alpha-reductase inhibitors (finasteride)
- Combination Therapy

BPH TREATMENT

Surgical

- Indicated for AUA score >16
- Transurethral Prostatectomy(TURP): 18% morbidity with .2% mortality. 80-90% improvement at 1 year but 60-75% at 5 years and 5% require repeat TURP.
- Transurethral Incision of Prostate (TUIP): less morbidity with similar efficacy indicated for smaller prostates.
- Open Prostatectomy: indicated for glands >60 grams or when additional procedure needed for suprapubic/retropubic approaches

BPH TREATMENT

New Modalities

- Urethral stents
- Laser prostatectomy
- Microwave hyperthermia
- Electrovaporization
- Transurethral Balloon Dilatation of the Prostate (TUBD)

PROSTATE CANCER

Incidence/Prevalence

- Most common cancer in men
- 21% of all cancers
- Increased risk with age with 30% presenting between age 70-79 and 67% between age 80-89
- Slowly progressive (as a rule): low grade→good prognosis, high grade→poor prognosis, and moderate grade→Rx alters prognosis (these are the ones we need to diagnose)

PROSTATE CANCER

Possible etiologies/risk factors

- Age is the most important risk factor
- Genetic predisposition/ racial and family history
- Diet risk: high animal fat, low vegetable and low fish(omega-3 fatty acids) intake, low selenium intake, low fruit, low tomato.
- Hormonal risk: high testosterone, high insulin, and high insulin-like growth factor
- Low UV light exposure.
- Pesticide link

PROSTATE CANCER Screening

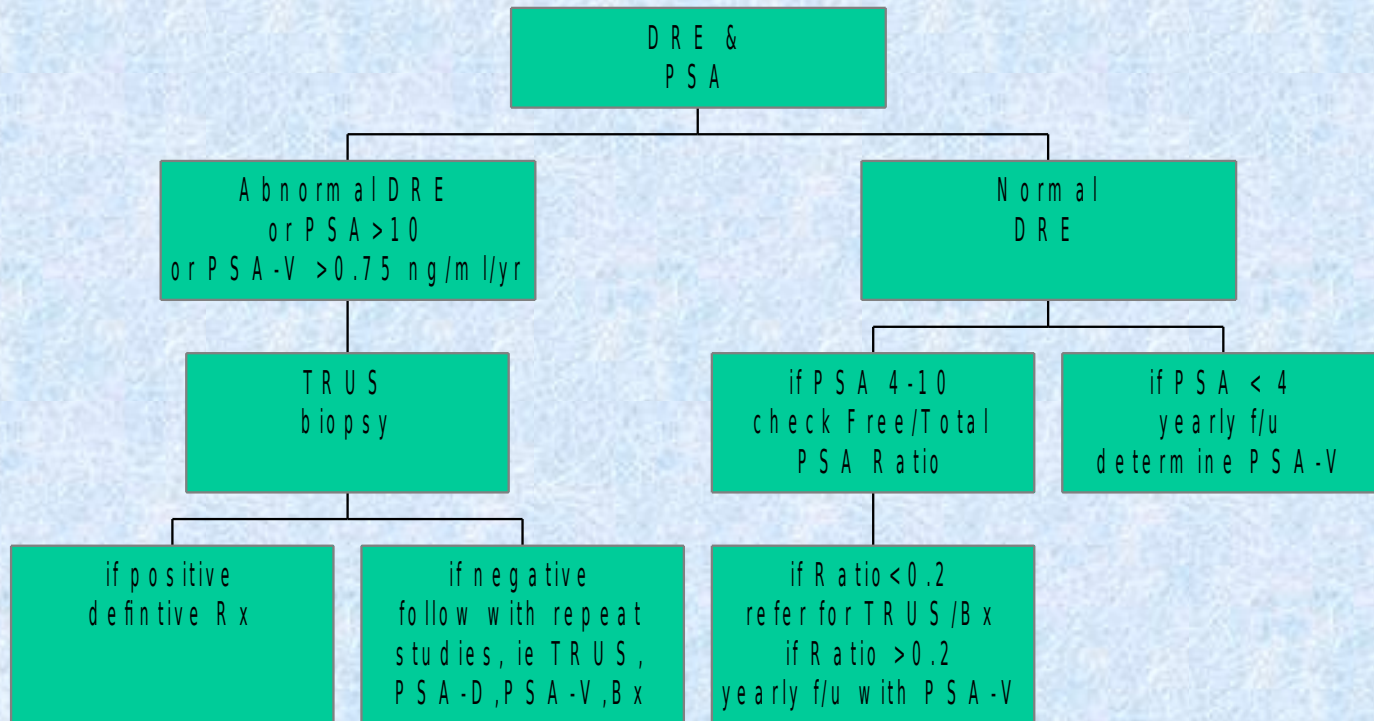
- DRE: can detect tumors in the posterior and lateral aspects of the gland. Can detect extension. Accuracy depends on experience of examiner.
- PSA: must be interpreted in clinical context, higher sensitivity and lower specificity than DRE
- Referral for TRUS and/or sextant biopsy if DRE or PSA abnormal
- Screening is controversial, no consensus, morbidity and mortality data not conclusive. However, disease-specific mortality has decreased since PSA has become widely used.

THE ROLE OF PSA

Possible Refinements

- Consider age and race adjustments. Lower threshold for biopsy(<2.6, if < age 60)
- PSA density(TRUS adjusted PSA).
- PSA velocity (rate of change of PSA).
- Free/Bound PSA values may be useful in separating elevations in PSA from BPH vs cancer.
- Delay performing test 48 hours after recent ejaculation or local trauma and wait at least 6 weeks after biopsy or TURP.
- If PSA elevated wait 2-4 weeks and repeat to confirm. Some recommend antibiotics & repeat.

ONE POSSIBLE APPROACH



PROSTATE CANCER

Signs

- Stony hard prostate
- Hematuria
- Irregular, firm, hard nodule on DRE
- Signs of obstructive uropathy/Rising AUA Score
- Neurologic cord compression signs
- Pathologic fractures/Bone pain
- Sudden onset of erectile dysfunction
- Painful erection
- Hematospermia

PROSTATE CANCER

Diagnosis

- Prostate biopsy by FNA or Biopsy
- 33-50% chance of biopsy being malignant
- Differential Diagnosis: BPH, chronic prostatitis, prostatic TB, old biopsy fibrosis, prostatic cysts, prostatic calculi

PROSTATE CANCER

Clinical Staging

- DRE→size, location, volume, local extension
- TRUS/Endorectal coil MRI→local extension
- CT/ProstaScint Scan→pre-op pelvic node assessment
- Pelvic Lymphadenectomy→pelvic nodes
- Other Tumor Markers
- PSA→highest in transition zone tumors and well differentiated tumors. Its greatest value is in detecting recurrence
- Bone Scan→mets

PROSTATE CANCER STAGING

TMN Staging & Gleason Scale

- T1 are microscopic and non-palpable
- T2 are palpable but confined to gland
- T3 protrude beyond the gland capsule
- T4 are fixed and extend well beyond the gland
- Based on tumor histology
- Grade 1 Gleason is the most well-differentiated
- Grade 5 is the most poorly differentiated
- Combined scores are reported (primary +secondary)(2-10)

PROSTATE CANCER

Treatment Options for Clinically Localized Disease

- Radical prostatectomy (< age 71, LE > 15 yrs)
- Radiation therapy (external beam or interstitial implantation) (LE 7-10 yrs)
- Watchful Waiting (> age 70, LE < 11 yrs)
- Cryosurgery
- Possible hormonal therapy (mostly used for locally advanced or metastatic disease)

TREATMENT OPTIONS FOR PROSTATE CANCER

	OBSERVATION "Watchful Waiting"	SURGERY "Radical Prostatectomy"	EXTERNAL RADIATION "External Beam"	INTERNAL RADIATION "Seed Implant" "Brachytherapy"	HORMONAL THERAPY
What you go through	*Regular follow-ups every 3-6 months with exams and PSA tests *Possible anxiety/fear	*Short hospital stay (3-5 days) *Surgical procedure *Initial incontinence common *Bladder catheter for <u>2-3 weeks</u>	*Daily treatment for 6-8 weeks (Mon-Fri) *Burning urination and increased frequency *Rectal irritation (diarrhea, cramps, urgency)	*Same day surgery *Several visits before surgery *Surgical procedure *Burning urination for 3 mos *Rectal irritation (diarrhea, cramps, urgency)	*Treatment options include orchiectomy (testicle removal) or medical treatments of monthly or quarterly injections and/or hormonal pills taken daily
Major long-term risks	*Progression of cancer *Death from prostate cancer	*Impotence ** *Incontinence	*Impotence *Rectal injury (diarrhea)	*Impotence *Bladder/urethra injury *Rectal injury	*Impotence *Loss of sexual desire *Probable hot flashes *Possible breast tenderness or enlargement
Advantages	* Watch the growth of tumor and take action only when necessary *Good treatment if cancer stays within prostate *Avoid complications of treatment	*Remove source of tumor and lymph nodes *Curative treatment if cancer is contained within prostate *Can sample tumor/lymph nodes for analysis *** *Avoid risk of radiation complications	*Externally radiate source of tumor and lymph nodes *Can treat cancer that has spread outside prostate *Avoid risk of surgical complications	*Internally radiate source of tumor and lymph nodes *Good treatment if cancer is contained within prostate *Lower radiation dose to surrounding areas	*Shrink size of tumor and stop growth of tumor by lowering testosterone *May improve results of surgery and radiation by shrinking tumor size**
Disadvantages	*Fear and anxiety that cancer is growing * May miss "window of opportunity" for cure *Possible complications from cancer growth	*Short hospital stay *Can not remove all cancer if it has spread beyond the prostate *Possible surgical complications	*Daily trips to hospital *Possible complications from radiation to surrounding areas *Complicates future pelvic surgery	*Can not remove all cancer if it has spread beyond prostate *More intense side effects compared to external beam *Long term results more uncertain than with surgery or external radiation	*Generally does not cure the cancer
Notes		**Nerve-sparing technique may reduce chance of impotence *** Done with retropubic approach (abdominal); not perineal approach (between scrotum and anus)	*May be given with seed implantation	*May be given with external beam radiation	** May be used prior to surgery or radiation *Testosterone is the male sex hormone that is the "fertilizer" for prostate cancer cells; reduction of testosterone make prostate cancer shrink

MOST IMPORTANT TREATMENT ISSUES

- Patient's medical condition/age
- Gleason Grade and PSA
- Is it Organ Confined?/Stage
- Estimation of outcome for individual patient
- Potential side effects of treatments

MOST IMPORTANT POINTS FOR THE FAMILY PRACTITIONER

- For BPH: It is mostly a primary care disease for both diagnosis and treatment. Know the danger signs and when to refer.
- For Prostate Cancer: Screening and Rx may be controversial, but something is making a difference. All patients deserve an informed discussion about options.